

REMARKS/ARGUMENTS

In the Claims:

Claims 18-41 are in this application.

Claims 1-17 have been canceled.

Claims 18, 24, 32, and 36-39 are currently amended.

Claim Rejections

Rejections under 35 U.S.C. § 101

Claims 18-20 were rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 18-20 of prior U.S. Patent No. 6,849,518.

Claims 18-20 of U.S. Patent No. 6,849,518 were excluded from allowance in a Supplemental Notice of Allowance in Application 10/141,545 dated 11/30/04. Claims 18-20 are to be deleted from U.S. Patent No. 6,849,518. Applicant has contacted the Examiner of Application 10/141,545 in order to gain direction in deleting those claims. Applicant respectfully requests the rejection be held in abeyance until the claims are deleted in U.S. Patent No. 6,849,518.

Alternatively, claim 18 is currently amended. Claim 18 now recites “the deep isolation trenches and the shallow isolation trenches are self-aligned using a single photolithography step and at least one shallow isolation trench has a width equal to or greater than the width of at least one deep isolation trench.” Neither “using a single photolithography step” nor “at least one shallow isolation trench has a width equal to or greater than the width of at least one deep isolation trench” are recited in claim 18 of U.S. Patent No. 6,849,518. Therefore, claim 18 of the present application and claim 18

of U.S. Patent No. 6,849,518 are not coextensive in scope and the double patenting rejection should be withdrawn.

Rejections under 35 U.S.C. § 102

Claim 32 was rejected under 35 U.S.C. 102(b) as being anticipated by Akram (5,895,253).

Independent claim 32 is currently amended. Claim 32 now recites “shallow isolation trenches in a first area and deep isolation trenches in a second area.” Akram discloses deep isolation trenches that are self-aligned within shallow isolation trenches. (Akram at FIG. 11). However, Akram does not disclose shallow isolation trenches in a first area and deep isolation trenches in a second area. Instead, Akram teaches deep isolation trenches formed within shallow isolation trenches. (Akram at FIG. 11 and Abstract). Therefore, claim 32 is not anticipated by Akram.

Claims 18, 25-30, 32, and 33 were rejected under 35 U.S.C. 102(e) as being anticipated by Johansson et al. (US 2005/0020003) (hereinafter “Johansson”).

Independent claims 18 and 32 are currently amended. Claim 18 now recites “the deep isolation trenches and the shallow isolation trenches are self-aligned using a single photolithography step.” Claim 32 now recites “the deep and shallow isolation trenches are self-aligned using a single photolithography step.” Johansson discloses deep trenches formed within shallow trenches where the photolithography step used to define the deep trenches aligns the deep trenches to an edge of the shallow trench. (Johansson at Fig. 6 and [0097]). However, Johansson does not disclose deep and

shallow isolation trenches that are self-aligned using a single photolithography step. Instead, Johansson uses a second photolithography step to align the deep trenches to shallow trenches which were formed using a first photolithography step. (Johansson at [0095] and [0085]). Therefore, amended claims 18 and 32 are not anticipated by Johansson.

Claims 25-30 depend from independent claim 18. Claim 33 depends from independent claim 32. Based at least in part on their dependencies, claims 25-30 and 32 are also not anticipated by Johansson.

Rejections under 35 U.S.C. § 103

Claims 18-41 were rejected under 35 U.S.C. 103(a) as being unpatentable over Malik et al. (6,294,423) (hereinafter “Malik”) in view of Nishida et al. (6,461,934) (hereinafter “Nishida”).

Independent claims 18 and 39 are currently amended. Claim 18 now recites “at least one shallow isolation trench has a width equal to or greater than the width of at least one deep isolation trench.” Claim 39 now recites “at least one shallow isolation trench has a width equal to or greater than the width of at least one deep isolation trench.” Malik discloses forming shallow and deep isolation trenches. (Malik at Abstract). However, Malik does not disclose shallow trenches having widths equal to or greater than the widths of deep trenches. Instead, Malik only discloses deep trenches having widths greater than the widths of shallow trenches. (Malik at Abstract and Col. 3, lines 35-40). Nishida fails to cure the deficiency of Malik. Instead, Nishida also only discloses deep trenches having widths greater than the widths of shallow trenches.

(Nishida at Abstract and Col. 6, lines 32-37). Therefore, amended claims 18 and 39 are not rendered obvious by Malik in view of Nishida.

Claims 19-31 depend from claim 18. Claims 40-41 depend from claim 39. Based at least in part on their dependencies, claims 19-31 and 40-41 are not rendered obvious by Malik in view of Nishida.

Independent claim 32 is currently amended. Claim 32 now recites “a photoresist layer covering the first area and leaving the second area exposed.” As admitted by the Examiner, Malik and Nishida do not disclose a photoresist layer covering the first area and leaving the second area exposed. (Office Action at Page 6). Despite this admission, the Examiner rejected claim 31 (which includes a similar limitation) because “this limitation is taken to be a product by process limitation.” (Office Action at Page 6). The recited limitation provides a structural element to the claimed apparatus, namely, “a photoresist layer covering the first area and leaving the second area exposed” and is not a process step.

Further, in analyzing a product by process claim, the structure implied by a process step should be considered. (MPEP §2113, ¶ 2). However, nothing in product by process claim analysis allows a claimed structural element to be disregarded. The examiner states “it is the patentability of the claimed product . . . which must be established.” However, the Examiner then ignored the apparatus as claimed and looked only to “the final product.” (Office Action at Page 7). As such, the rejection should be withdrawn based on the admission that Malik and Nishida do not disclose a photoresist layer covering the first area and leaving the second area exposed. Therefore, amended claim 32 is not rendered obvious by Malik in view of Nishida.

Claims 33-38 depend from claim 32. Based at least in part on their dependencies, claims 33-38 are also not rendered obvious by Malik in view of Nishida.

Conclusion:

Applicant respectfully submits that claims 18-41 are in condition for allowance. Early issuance of the Notice of Allowance is respectfully requested.

The Commissioner is hereby authorized to charge shortages or credit overpayments to Deposit Account No. 02-2666. A Fee Transmittal is enclosed in duplicate for fee processing purposes. The Examiner is invited to call Paul A. Mendonsa at (503) 439-8778 if there remains any issue with allowance of this case.

Respectfully submitted,

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